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Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Graf, L. (2016). The rise of work-based academic education in Austria, Germany and Switzerland. *Journal of Vocational Education & Training*, 68(1), 1-16. <https://doi.org/10.1080/13636820.2015.1107749>

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To cite this article: Lukas Graf (2016) The rise of work-based academic education in Austria, Germany and Switzerland, Journal of Vocational Education & Training, 68:1, 1-16, DOI: [10.1080/13636820.2015.1107749](https://doi.org/10.1080/13636820.2015.1107749)

To link to this article: <https://doi.org/10.1080/13636820.2015.1107749>



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The rise of work-based academic education in Austria, Germany and Switzerland

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ABSTRACT

Austria, Germany and Switzerland are renowned for their extensive systems of collective vocational skill formation, which, however, have developed largely in separation from higher education. This divide has become increasingly contested as a result of a variety of socioeconomic factors that have led to an increasing demand for higher level skills. Do the three countries deal with these challenges in similar ways? The comparative analysis is based on process tracing from the 1960s to 2013 and builds on historical institutionalism as well as several dozen expert interviews with key stakeholders. A key finding is that all three countries have developed hybrid forms of work-based academic education that combine elements of vocational training and higher education. However, in Austria and Switzerland, these hybrids have been integrated into the traditional model of collective governance, whereas the German case signifies a departure from this model.

ARTICLE HISTORY

Received 27 February 2015

Accepted 4 October 2015

KEYWORDS

Vocational education and training; higher education; gradual institutional change; layering; comparative VET; labour markets

Introduction

In international comparison, the training systems of Austria, Germany and Switzerland can be considered as structurally similar (e.g. Pilz 2012). All three countries are coordinated market economies and renowned for their extensive dual apprenticeship training systems at upper secondary level (Hall and Soskice 2001; Rothe 2001). Moreover, the three countries are part of the collective skill system cluster. That is, initial vocational training is collectively organised through the cooperation of firms, the state as well as intermediary associations such as employers' associations and trade unions (Busemeyer and Trampusch 2012). However, Austria, Germany and Switzerland are also characterised by an institutional divide between the vocational education and training system (VET) and the academic or higher education system (HE). This division between VET and HE, called the 'educational schism' (Baethge 2006), has become increasingly contested due to a complex set of interrelated socioeconomic factors resulting in an increasing demand for higher skills. These challenges include the structural development towards the service and knowledge economy, related changes in

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the production model and work places as well as rising educational aspirations of individuals (e.g. Hippach-Schneider et al. 2013; Ebner, Graf, and Nikolai 2013). In addition, recent European reforms, like the Bologna and the Copenhagen processes, push for greater mobility between VET and HE, among other things, to reduce social inequalities linked to educational opportunities (Powell and Solga 2010; Bernhard, Graf, and Powell 2013).

Do the similar systems of Austria, Germany and Switzerland deal with these challenges in similar ways? The presented comparative institutional analysis is based on process tracing in all three countries from the 1960s to 2013, builds on historical institutionalism and is primarily based on several dozen expert interviews with key stakeholders as well as document analysis. The study finds that in Austria, Germany and Switzerland hybrid organisational forms have arisen that combine some of the core institutional elements from both the VET field and the HE field such as regulations related to certificates and rules of accession, normative principles with regard to curricular standards and, more generally, educational concepts and ideals. These hybrid organisational forms have been gradually expanding in a niche between the established fields of VET and HE. Thus, a major way in which Austria, Germany and Switzerland have been addressing the above-mentioned challenges to the rigid institutional divide between VET and HE is through hybrid work-based academic programmes that represent incremental change in the form of layering at the nexus of VET and HE.

However, due to specific factors in the respective national contexts, layering has led to different national variants of hybrid organisational forms, namely (1) the VET colleges (*Berufsbildende Höhere Schulen*) in Austria, the (2) dual study programmes (*duale Studiengänge*) in Germany and (3) the hybrid configuration of initial vocational education and training (IVET) and universities of applied sciences (UAS) in Switzerland (IVET-UAS configuration).

Each of these three hybrid organisational forms straddles the boundary between VET and HE, but also the conventional divide between upper secondary and post-secondary education. In Austria, the VET colleges pick up young people at an early stage and lead to a double qualification of a higher education entrance certificate and an official VET certificate that is recognised as imparting students with competences reaching beyond the secondary level. In Germany, the dual study programmes combine in-firm training with HE studies; these programmes lead to a bachelor's degree and in many cases also to an official upper secondary VET certificate. The Swiss IVET-UAS configuration increases the attractiveness of dual apprenticeship training as it provides apprentices with an institutionalised path to higher education studies at bachelor level.

While other studies have analysed hybrid double qualifications that combine VET at the upper secondary level with access to HE (Davey and Fuller 2013, 81–82; Deißinger et al. 2013), my focus is on hybrid organisational forms that span the boundary between upper secondary VET and post-secondary education HE. I analyse the development of these hybrid organisational forms to assess their role in the evolution of collective skill formation in Austria, Germany and Switzerland. A key finding of this comparison is that Austria and Switzerland feature a more consensual approach to reform, which is more effective in compensating for the disadvantages weaker socioeconomic groups face. In contrast, in Germany the process of gradual institutional change breaks with the tradition of collectively organised skill formation.

The following section presents the historical-comparative research design. After that, I describe the three hybrid organisational forms as well as their historical evolution. Finally, I compare the three cases and discuss the key findings.

Historical-comparative approach, methods and data

In order to explore the rise of work-based academic education, this paper draws inspiration from the historical-institutional perspective and the theory of gradual institutional change (Streeck and Thelen 2005). The fields of VET and HE are usually seen as serving different purposes in the respective national political economies – especially in those countries with extensive dual VET systems. Each field is shaped by different constellations of interest groups and strongly legitimised within a complex stratification system. However, at the same time, the institutional divide between VET and HE is increasingly challenged by socioeconomic developments such as the shift to the service and knowledge economy and rising educational aspiration by individuals. Thus, there are both strong forces stabilising the institutional divide between VET and HE as well as an increasing pressure for institutional change. In such a situation, historical institutionalism (Streeck and Thelen, 2005) suggests that change is most likely to occur not through, for example, outright displacement but rather through ‘indirect activities’ and gradual institutional changes at the fringe of a given institutional order. This implies that institutions are not replaced by wholly new ones, but rather amended, revised or new rules added. In this context, change is associated with small amendments that can set into motion dynamics that may eventually crowd out or supplant the old logic of a given institutional configuration. In other words, incremental changes over time can gradually add up to transformative change (Thelen 2004, 217). Based on these arguments from historical institutionalism – and given the strong institutionalisation of the institutional divide between VET and HE in Austria, Germany and Switzerland – I expect that institutional changes at the nexus of VET and HE in these three countries represent gradual rather than radical modes of change.

Streeck and Thelen (2005) further distinguish between four key modes of gradual institutional change, namely (I) displacement, (II) conversion, (III) drift and (IV) layering: (I) When existing institutional rules are removed and new ones introduced, this represents *displacement*. (II) When rules formally stay the same but are interpreted and implemented in new ways, this redeployment is referred to as *conversion*. (III) *Drift* refers to shifts occurring in the external conditions of a rule, implying that this rule formally remains in place but that its impact changes (see also Hacker 2005). (IV) When institutional rules are not replaced by wholly new ones, but rather new rules added that may alter the meaning of the older rules over time, this is called *layering* (see also Schickler 2001).

The following empirical analysis will explore, firstly, whether any of the recent developments in Austria, Germany and Switzerland resemble one or more of these modes of gradual institutional change and, if so, secondly, whether these changes comply with the traditional developmental path of these educational systems. The case studies cover the genesis and expansion of the hybrid organisational forms from roughly the 1960s up to 2013. The 1960s are selected as a starting point as a time when massive educational expansion exerted significant pressure on educational systems – especially at the post-secondary level.

With regard to the comparative method, the article applies the method of parallel demonstration of theory (Skocpol and Somers 1980). That is, Austria, Germany and Switzerland are juxtaposed to examine whether the theory of gradual institutional change can be convincingly applied and, if so, to see how this theory operates on the ground. To account for institutional changes, I rely on systematic process analysis, which has special value for developing theory-oriented explanations in the context of small-n case studies. The paper practises

process tracing as a method of tracing change in an explorative way. That is, process tracing is referred to as the analysis of sequences of events to explore relevant linking mechanisms and intervening processes in specific cases (see Mahoney 2004: 88–89). For each country case, I offer a narrative account of crucial sequential events. When applying this method, ideally, the researcher will find that the most significant historical steps towards the outcome can be explained by reference to a theory (see George and Bennett 2005, 30) – in this case, this is the theory of gradual institutional change.

More specifically, each case study will provide a historical account of institutional changes and new institutional arrangements at the nexus of VET and HE. To detect and define institutional change, these arrangements will then be assessed in their relation to the traditional institutional configurations of the fields of VET and HE. More specifically, I will compare institutional change along three institutional dimensions (D) that constitute fundamental features of educational systems:

- *Learning processes* (D1) referring to, for example, curricular standards: here, the empirical analysis focuses especially on the curricular combination of learning experiences in the classroom and in the workplace or training company.
- *Governance structures* (D2) referring to, for instance, the influence of state agencies and social partners: here, it can be distinguished between *regulation*, *financing*, *administration*, and *monitoring* as core elements of educational governance (e.g. Streeck et al. 1987). While the empirical analysis touches upon all of these elements, its main focus is on regulation, i.e. the way in which educational goals, contents and standards are decided.
- *Location within the educational system* (D3) referring to the locus of the educational institution and its relation to other parts of the educational system.

These three dimensions also serve to operationalise hybrid organisational forms. Thus, if an organisational form integrates learning processes (D1) and governance structures (D2) from the traditional fields of VET and HE, and also straddles the boundary between VET and HE as well as between upper secondary and post-secondary forms of learning (D3), then it is considered to be a hybrid.

The key data source is composed of semi-standardised expert interviews with a representative sample of 44 relevant VET and HE stakeholders in Austria, Germany and Switzerland. The expert interviews were carried out between 2010 and 2013 with representatives of state agencies, employers, employees, intermediary organisations, educational organisations and specialised national research institutes on VET and HE in Austria (AT: 11 interviews), Germany (DE: 15 interviews) and Switzerland (CH: 18 interviews). The interviews lasted for at least 45 min and in some cases up to 2 hours. In addition to the expert interviews and available secondary sources, I analysed official documents by key national stakeholders.

In the following, I describe the hybrid organisational forms in Austria, Germany and Switzerland in more detail and sketch their historical evolution.

Austria: VET colleges

The VET system of Austria displays a ‘dualistic structure’ as it builds on both dual apprenticeship training and full-time vocational schools (Lassnigg 2011). In the intragroup comparison of the three countries analysed in this paper, Austria has the strongest tradition of full-time

vocational schooling. The historical development of the prestigious VET colleges, which combine 'higher professional education with sophisticated general education' (Aff, Paschinger, and Rechberger 2013, 15), builds on this tradition.

The VET colleges became institutionalised in their present form in the 1960s but have roots in previous centuries. The creation of a strong full-time vocational schooling sector goes back to the influence of French educational ideals (based on full-time school-based VET) imported by Dumreicher in the nineteenth century and even educational reform policies dating back to Maria Theresia's reign in the eighteenth century (e.g. Schermaier 1999, 133; Interview AT1). These influences led to a strong school-based VET sector that in combination with the also significant dual apprenticeship training sector provided the ground for the creation of the VET colleges. The massive expansion of VET colleges from the 1970s onwards was supported by youth's strong demand for VET college qualifications and financed by a Social Democratic (SPÖ)-led government (Graf, Lassnigg, and Powell 2012).

The VET curriculum takes one year longer than that of the general academic secondary school. In five years, it leads to the double qualification of a VET diploma and an academic baccalaureate: the academic baccalaureate offers general access to higher education, while the VET diploma provides the right to exercise higher level occupations (*Berechtigung zur Ausübung gehobener Berufe*) (SchOG 2012, §65).¹ Around 26% of all students in the tenth grade are enrolled in a VET college (Tritscher-Archan and Nowak 2011). There are six major VET college types covering the fields of engineering, arts and crafts; business administration; management and service industries; tourism; fashion and design as well as agriculture and forestry. After three years of relevant professional experience, graduates from most VET Colleges of Engineering, Arts and Crafts and VET Colleges of Agriculture and Forestry can apply for the official title 'Engineer' (*Standesbezeichnung 'Ingenieur'*) at the responsible ministry. While these engineering titles are not official academic degrees, they nevertheless enjoy a very high reputation in the Austrian labour market (Interviews AT5, AT11). In fact, many graduates from the VET colleges choose to not access higher education studies but directly enter the labour market. When VET college graduates do decide to access higher education, the recognition of their relevant prior learning has to be granted.

The VET colleges enjoy an excellent reputation both with young people and Austrian employers. They are recognised as enabling students to acquire skills beyond the upper secondary level. For example, in job advertisements there is frequently no difference made between graduates from the VET colleges and bachelor graduates from universities of applied sciences (see Lassnigg 2013, 130). That is, employers often open the same job position for both VET college graduates and university of applied sciences graduates (Interviews AT2, AT8). One reason why some employers prefer graduates from VET colleges to holders of a bachelor's degree is the greater proportion of practical training that the VET colleges offer, which is in line with the skills demanded by small- and medium-sized firms that dominate the Austrian economy (see Culpepper 2007).

The VET colleges systematically link curricular contents from vocational training and academic education, for example, in the training companies that are an integral learning site of the VET Colleges of Business Administration. The VET colleges provide an attractive educational pathway, especially for children from families otherwise remote from academia, mainly because they offer a double qualification that grants access both to the labour market and to higher education (Interviews AT1, AT8). The decision to study at a VET college, typically

made at the age of 14, keeps open different educational and career pathways, reducing the risk of academic dropout.

The governance responsibility for the VET colleges lies with the responsible ministry for education – but with involvement of employer and employee associations within the framework of social partnership. The VET colleges are a part of the system of VET governance given that they offer VET diplomas as a part of the above-mentioned double qualification: they are subject to the Vocational Training Act in as far as the access to formally regulated vocations or the classification in the wage scale are concerned. More generally, in Austria the social partners have very close ties to the political parties and ministries and can use these connections to influence policy-making in the field of school-based VET. The ministries and political parties either formally or informally integrate the social partners within the process of political opinion formation. With regard to full-time VET schooling, the social partners have the right to submit assessments on topics such as reforms of school laws and curricula. In addition, they provide students, schools and firms with vocational information and guidance and they also support fostering links between the full-time vocational schools and firms (e.g. Archan and Mayr 2006, 22).

In sum, the VET colleges represent a hybrid organisational form because, firstly, they combine *learning processes* from both VET and HE (D1). This refers, for example, to the VET college double qualification as well as (in some cases) the possibility of being awarded an engineering title. Secondly, the VET college sector is not solely subject to traditional academic school *governance*, but integrates aspects of governance typical for the dual VET sector (D2). Thirdly, in terms of their *location* in the education system, the VET colleges straddle the boundary between VET and HE as well as between upper secondary and post-secondary forms of learning (D3). The latter aspect is, for instance, illustrated by their strong recognition in the domestic labour market, but also at the European level (EU 2005). However, the VET colleges do not replace the traditional institutional logics and forms of education in the fields of VET and HE, but rather represent an addition to these two fields while at the same time drawing on both of them. This type of change resembles most closely the change mode of *layering*, allowing VET colleges to become firmly established and even expand as a hybrid located between the systems of dual apprenticeship training and academic secondary schooling.

Germany: dual study programmes

The dual study programme can be seen as transposition of the dual apprenticeship training principle to the higher education system (Deißinger 2000). As Kahlert (2006) notes, the first educational organisations offering dual study programmes, the so-called vocational academies, were not mentioned in any general education policy plan (also Interview DE3, DE8). The emergence of the dual study programmes from the late 1960s onwards was largely a subversive response by large industrial firms to the perceived academic drift related to the politically planned upgrading of former vocational and engineering schools into universities of applied sciences. That is, influential large firms in Baden-Wuerttemberg launched them to secure their hold on high-end vocational education and training, which they feared they would lose in the face of the greater academic autonomy of the new universities of applied sciences (Kahlert 2006). The first dual study programmes were created from the bottom-up by local stakeholders who found a niche in the grey zone between the fields of HE and VET. These stakeholders neither sought to entirely displace the newly established universities

of applied sciences nor the traditional dual apprenticeship training, but to establish a new organisational form at the fringes of these two established ones.

Dual study programmes are gaining increasing attention within the social science literature on vocational training in Germany (e.g. Solga et al. 2014; Thelen 2014). Essentially, they combine two distinct learning environments, namely HE institutions and the workplace. In some of the dual study programmes, a vocational school is also integrated (Waldhausen and Werner 2005). In dual study programmes, students and firms are bound by a contract. The programmes usually lead to a bachelor's degree in about three to four years (dual studies at master's level are still very rare) and connect two didactical principles, namely scientific grounding and practical training. For example, the teaching staff is composed of lecturers, trainers from industry and sometimes vocational school teachers. Dual study programmes combine institutional and organisational elements from the fields of VET and HE with regard to the respective curricula, teaching staff or funding structures. The original type of dual study programmes, the *ausbildungsintegrierende* type ('dual study programmes integrating an initial VET certificate'), leads to an official vocational certificate from the field of vocational training (upper secondary level) as well as a bachelor's degree from the higher education sector (post-secondary level). The *ausbildungsintegrierende* type is the only one with direct linkages to the traditional system of collective VET governance as far as the VET certificate is concerned. All other types 'only' lead to a bachelor's degree, not a double qualification.

Dual study programmes are expanding rapidly and attract increasing attention from all major stakeholders (Interviews DE1–8). In April 2013, the Federal Institute for Vocational Education and Training counted 1461 dual study programmes and more than 64,358 study places (BIBB 2014). Compared to April 2008, this signifies a growth in registered study places of 46% (BIBB 2008, 2014). Dual study programmes are offered by universities of applied sciences (59%), the Baden-Wuerttemberg Cooperative State University (20%), vocational academies (15%) and universities (6%) (BIBB 2014, 28). In total, around 27,900 cooperative arrangements exist between firms and different educational providers within the dual studies framework (Kupfer and Stertz 2011, 29). Dual study programmes are most commonly offered in engineering sciences and business studies.

The profile of a dual study programme is largely determined by internal negotiations and a cooperation agreement between the training firm and the organisational provider (Mucke and Schwiedrzik 2000, 15; Interview DE4). Also, there is a significant degree of flexibility in the specific forms of coordination between firms and educational organisation (e.g. Reischl 2008). There is no federal standard with regard to the salaries of those enrolled in dual study programmes. However, in the case of the *ausbildungsintegrierende* dual study programmes it is decreed that the student should receive at least the same payment that a regular apprentice (at upper secondary level) would receive. The actual payment for students in dual study programmes is sometimes higher (e.g. Interview DE2), depending on specific local regulations or sometimes even on individual negotiations between the student and the firm.

One reason for this limited degree of standardisation is that employee associations and trade unions play a rather marginal role in the governance of the higher education system – unions are only slowly starting to pick up on the topic of dual study programmes, aiming to increase their influence in this growing field (e.g. ver.di 2014). Overall, this represents a decline in the degree of collective organisation within the German skill formation system. For example, universities and other HE institutions offering dual study programmes have greater autonomy in their doings than schools in the VET field. Individual firms take advantage of

the more loosely regulated environment in the HE field to strategically set up dual study programmes with individual higher education institutions. In this way, the dual principle is adapted to new purposes, while ‘rigidly defined’ traditional occupations can be adjusted to the specific skill demands of firms. For example, only in a few cases there are employer/works council agreements in place regarding dual study programmes (see Busse 2009). The actual process of learning, the curricula and the official status of students in the work place largely depends on the specific agreements between the firm and the student as well as between the firm and the higher education institutions (see Becker 2006; Interviews DE8, DE9).

Dual study programmes mostly lack clear concepts for the integration of the in-firm learning phases with the study phases at the educational organisation (see, e.g. Heidemann and Koch 2013; Interview DE10). This lack of organisation and national standardisation contrasts with the more collectively organised dual apprenticeship training at upper secondary level. However, many firms are not particularly eager to develop similar standards also for dual studies as the dual study programmes allow them to utilise greater individual leeway than dual apprenticeship training at upper secondary level. Firms see dual study programmes mainly as a safe and cheap option to recruit skilled workers at a time when it becomes increasingly difficult to find suitable candidates on the German labour market (see Kupfer, Köhlmann-Eckel, and Kolter 2014). Another problem with the lack of standardisation is that it makes it difficult for individuals to access information about dual studies: due to the complexity of this emerging field, the database of the Federal Institute for Vocational Education and Training on dual study programmes is not yet encompassing all available programmes (Interviews DE5, DE6), which implies that interested individuals cannot get a complete picture of the rapidly expanding sector of hybrid programmes.

Nevertheless, dual study programmes can be considered hybrid organisational forms for three reasons. Firstly, they combine *learning processes* from both VET and HE, and the curricula usually stress the equal importance of academic and firm-based learning (D1). Secondly, these programmes are neither solely subject to traditional HE *governance* nor to traditional VET governance, but to a mix of both (D2). Yet, their new mode of governance is less based on a collective approach but displays segmentalist tendencies (see discussion in comparative section). Thirdly, with regard to their *location*, they link upper secondary VET and post-secondary HE, for example, through the double qualification granted by the *ausbildungsintegrierende* programmes (D3). As such, dual study programmes signify a rapidly expanding hybrid segment at the nexus of VET and HE. This expansion, in turn, is possible because this segment has been grafted as a layer in between the traditional and hard-to-reform fields of dual apprenticeship training and university education. Thus, *layering* represents the dominant mode of gradual institutional change in the German case.

Switzerland: hybrid configuration of dual apprenticeship training, vocational baccalaureate and universities of applied sciences

The Swiss configuration of initial vocational education and training and universities of applied sciences (IVET-UAS) is a hybrid organisational model that systematically links the vocational and the academic worlds of learning. This integrated model was established through a sustained collective effort on the part of key VET stakeholders (Interviews CH1–3, CH5, CH16). The Swiss UAS were formally created in 1995 through an upgrading of the most prestigious schools of higher vocational education and training, higher technical schools and higher

economic and administration schools. This upgrading was initially driven by these schools' interest in gaining better international recognition. That is, it was the representatives of these educational organisations themselves that initially triggered the establishment of the UAS (see Kiener and Gonon 1998). Moreover, according to Culpepper (2007), the establishment of the UAS was pushed by the relative dominance of large export-oriented enterprises in Switzerland and their interest in higher levels of general education. However, small- and medium-sized enterprises and their associations are also influential players in the Swiss skill formation system, facilitating rather self-preservative institutional change (Trampusch 2010). At a higher level, the Swiss federation promoted the creation of the UAS as a means to stimulate the economy (Zosso 2006; III–IV). The Swiss UAS are closely connected to the economy and the higher vocations and are intended to train individuals for a specific occupation while also providing them with a scientific foundation (BV 1995, Art. 3; Weber et al. 2010).

Together with the UAS a new certificate programme was introduced, namely the vocational baccalaureate. It is worth noting that Switzerland leads the three countries analysed in this paper in terms of the proportion of youth enrolled in dual apprenticeships at upper secondary level (e.g. Ebner 2013). This proportion is slightly more than 60% in Switzerland (Bundesamt für Statistik 2012). The vocational baccalaureate is targeted at this large group of apprentices and especially the most ambitious among them. The preparation for the vocational baccalaureate examination takes place in classes parallel or subsequently to dual apprenticeship training. The vocational baccalaureate – available in six different subject areas linked to the study fields offered at UAS – is often referred to as the 'royal path' (*Königsweg*) to the Swiss UAS (e.g. Backes-Gellner and Tuor 2010; several interviews): it provides direct access to thematically related study courses at UAS. In contrast, holders of an academic baccalaureate from an academic secondary school are required to complete a one-year practical experience within the desired field of study before they can commence studies at a Swiss UAS. This regulation is intended to prevent academic drift and to ensure that the UAS remain firmly grounded in vocational training (Interview CH13). For example, VET stakeholders maintain that the vocational baccalaureate has to be the dominant path to access UAS (Gonon 2013b, 192).² The quality of the vocational baccalaureate is ensured by the Federal Commission for the Vocational Baccalaureate (see Gonon 2013a, 133–134), which is composed of both VET and HE stakeholders.

In 2011, more than a third of all Swiss higher education students studied at universities of applied sciences (Bundesamt für Statistik 2013), which offer degrees in the fields of engineering, business, design, health, social work and art. At the Swiss UAS (including higher education institutions of teacher education), more than half of all freshmen have previously acquired a vocational baccalaureate (out of those with a domestic higher education entrance qualification) (Bundesamt für Statistik 2011, 6).³ A trend towards an academisation of the Swiss UAS, rendering them more similar to standard universities, is opposed by the actors in the Swiss VET system, who actively promote the 'different but equal' (*andersartig, aber gleichwertig*) principle in the relationship between VET and HE (see Weber et al. 2010). The rootedness of the Swiss UAS in the VET system is also reflected in their genesis: the creation of the UAS was supervised by the Federal Office for Professional Education and Technology (then responsible for VET).

The Swiss UAS have their own federal law and the way they are governed is rather similar to that of the rest of the VET sector, primarily as the social partners are involved in their steering. For example, the social partners are interwoven in the development of the Swiss

UAS through their engagement in the federal commission for universities of applied sciences (EFHK 2014, 13). As a result, the UAS are much closer to the economy and the world of work than traditional universities. Through the creation of the IVET-UAS configuration with its distinct hybrid profile, the stakeholders in the Swiss system of dual apprenticeship training managed to secure the VET systems' traditionally high reputation and its attractiveness for talented young people (Interviews CH2, CH8).

In summary, the Swiss combination of dual apprenticeship training, vocational baccalaureate and UAS represents a hybrid organisational form. Firstly, this IVET-UAS configuration brings together typical *learning processes* from both VET and HE (D1). Secondly, the *governance* of this configuration entails elements of traditional processes in both the dual system and the university system (D2). Thirdly, the IVET-UAS configuration systematically links upper secondary VET with post-secondary HE (D3). The development of this configuration represents a new arrangement that is added on top of established institutional procedures and, as such, can be called *layering*. This layering, however, does not call into question the core organising principle of the Swiss VET system because it is smoothly integrated within the overall educational system as a layer on top of the traditional dual apprenticeship training system.

Comparing Austria, Germany and Switzerland

In this section, I compare the three country cases with regard to, first, the dominant pattern of institutional change and, second, its implications for the character of collective skill formation. The analysis finds that, first, the basic pattern of change is similar in all three cases but that, second, the developments in Germany present a greater challenge to the tradition of collectively organised skill formation than those in Austria or Switzerland.

Layering at the nexus of VET and HE

The hybrid organisational forms found in the three case studies reflect and reproduce the vocational principle as one of the key characteristic of VET in Austria, Germany and Switzerland, but also integrate elements of academic learning as they challenge rather narrowly defined occupational categories. Crucially, they build on a significant degree of parity of esteem between VET and HE. That is, a central precondition for the genesis of these hybrid organisational forms of work-based academic education has been the existence of VET and HE fields that both enjoy a high reputation. Notably, the institutional relationship between VET and HE is configured differently in other major systems of skill formation. For example, in France, where full-time school-based VET is very prominent, or in the Anglophone countries, in which the focus of VET is more on 'learning-on-the-job' (cf. Trampusch 2014), the reputation and quantitative significance of VET relative to HE is not as high as in Austria, Germany and Switzerland.

The historical sketches of the genesis and expansion of the hybrid organisational forms in Austria, Germany and Switzerland provide evidence for gradual institutional change in the form of *layering*, because a new set of arrangements is added to established institutional procedures. All three variants of work-based academic education represent a layer grafted in between the fields of VET and HE. Thus, they present a challenge to previous assumptions that established institutional complementarities and stratification patterns in

the three coordinated market economies (see Hall and Soskice 2001) would prevent such boundary-spanning organisations. By now, all three hybrid organisational forms are solidly established within the respective skill formation systems.

Thus, the results of the process tracing demonstrate that the theory of gradual institutional change offers helpful concepts (in this specific case the mode of layering), which help us to better understand institutional changes in otherwise hard-to-reform fields such as systems of dual apprenticeship training and university-based higher education. The analysis also contributes to the theoretical literature as it shows how layering can take place not only in relation to one field but rather at the nexus of two fields, in this case VET and HE, by drawing on organisational and institutional elements from both. As a consequence of this change process, the institutional divide between VET and HE continues to be prevalent in all three countries; the divide is in fact complemented by layering in the form of hybrids spanning the boundary between VET and HE. Thus, at least in the short run, layering is to some extent also associated with a stabilisation of the traditional institutional logics of VET and HE as it reduces the pressure for reform (see discussion below).

Country-level differences in the impact of layering

The concept of layering is effective at capturing the phenomenon of the development of hybrid organisational forms at the nexus of VET and HE in the collective skills systems of Austria, Germany and Switzerland. However, while the patterns of layering in all three countries are broadly similar, we can also observe country-level variances with regard to the institutional fit of the hybrid organisational forms within the respective national system. Thus, in Austria and Switzerland, the hybrid organisational forms have been integrated into the traditional model of the collective governance of skill formation, whereas the German dual study programmes signify a departure from this governance model.

More specifically, in terms of governance structures, the implication of ongoing layering of VET and HE is not the same in these three countries. Thus, layering is linked to the increasing disorganisation of collective oversight in the German case, while it helps to uphold collective governance in the smaller states of Austria and Switzerland. That is, the dual study programmes in Germany no longer play along with the 'old' rules of corporatism and, hence, challenge the traditional collectivist character of vocational training in Germany. In contrast to the Austrian and the Swiss hybrid cases, in the case of the German dual study programmes national standardisation is very low – given the variety of shapes that dual study programmes take in different locations in Germany.

Especially large industrial firms have used dual study programmes as a way to create a segmentalist solution to meet their specific skill demands.⁴ This implies that these large firms no longer cooperate to the same extent with smaller firms, as smaller firms usually cannot afford to invest in more academically oriented study programmes. Smaller firms typically remain committed to the traditional dual apprenticeship training system at the secondary level. Large firms, on the other hand, are increasingly importing the dual apprenticeship principle into higher education, where they can more easily control access to these programmes, while the state still largely finances the academic part of the training. This has introduced a new form of social selectivity within German VET as firms tend to choose the best-performing applicants with a higher education entrance certificate (*Abitur*) for their dual study programmes. In fact, an analysis of degree courses in the fields of business and

technology in Baden-Wuerttemberg finds that the average *Abitur* grade of students in dual study programmes is as good as or even slightly better than that of students in regular university programmes (Kramer et al. 2011). Considering also the limited presences of trade unions at the higher education level, who might push for greater standardisation, the expansion of dual study programmes presents a challenge to the traditional understanding of industrial relations in the German model, previously based on social partnership. Not being overseen by collective actors such as unions or chambers, the expansion of dual study programmes represents a decline in associational self-regulation and, in the absence of compensating (centralised) state regulation, also destandardisation.⁵ From this perspective, the genesis and ongoing expansion of dual study programmes signifies a progressing exhaustion of collective skill formation.

It is beyond the scope of this paper to elaborate a detailed causal argument for the different national trajectories of layering in Germany versus Austria and Switzerland. However, the empirical findings indicate that the institutional environment in the two smaller states of Austria and Switzerland helps these to narrow political inequalities (see also Katzenstein 1984) as it facilitates the inclusion of all major stakeholders in the governance of the hybrid organisational forms. This is relevant because the question of which actors are involved in the construction and implementation of hybrid organisational forms (and to what extent) is an important one. Securing collective skill formation crucially depends on the inclusion of all major stakeholders in the ongoing process of reform. Austria and Switzerland seem to offer more favourable institutional conditions for sustained collective organisation. That is, Austria and Switzerland have been more successful than Germany in finding a consensual approach to layering, which, in turn, is more effective in compensating for the disadvantages weaker social groups face. In contrast, in the German system some key societal actors, most notably unions and chambers, are underrepresented in shaping the process of gradual institutional change. As a consequence, in Germany, firms and higher education institutions can exploit work-based academic education to 'cherry pick' the best-performing high school graduates for firm-specific training and neglect more collective concerns.

Conclusion

The case studies found that one central way in which the institutional divide between VET and HE is addressed is through the development of hybrid organisational forms of advanced work-based academic education that span the boundary between both organisational fields. This is illustrated by the VET colleges in Austria, the dual study programmes in Germany and the IVET-UAS configuration in Switzerland. Yet, in all three cases, the fields of VET and HE remain distinct despite the presence of these hybrid organisational forms. That is, the institutional divide between VET and HE continues to be prevalent in all three countries but is complemented by a hybrid layer that spans the boundary between VET and HE. In fact, it could be that layering even serves to shield off greater and more profound challenges to the core institutional logic of the traditional fields of VET and HE. In other words, it seems that core elements of the institutional configuration of the fields of VET and HE are to some degree stabilised as the pressures to reform them is – at least partly – absorbed by the hybrid organisational arrangements.

While these observations are valid for all three hybrid organisational forms, those in Austria and Switzerland have greater potential to increase social mobility for a group of

young people who would otherwise be unlikely to choose the 'standard' routes into HE via academic secondary schools. That is, both the Austrian and the Swiss approaches have a greater potential in promoting socioeconomic equality than the rapidly expanding dual study programmes in Germany. The capacity of the German dual study programmes to increase social mobility is limited in crucial ways. The main problem is that accessing these demanding programmes usually requires a very good higher education entrance certificate (while there is no such formal entrance requirement for traditional dual apprenticeship training in Germany). Furthermore, it is primarily the firm that selects the participants and not the state or the higher education institutions (as is otherwise the case in the German higher education system). Thus, prospective students usually apply directly to the firm, which has its own selection criteria and is mainly interested in hiring the best-performing high school graduates.

At a more theoretical level, the analysis showed that in all three countries gradual institutional change in the form of layering has taken place in response to an overly rigid institutional divide between VET and HE. However, while layering in Austria and Switzerland has contributed to the modernisation of collective skill formation, in Germany, it illustrates segmentalist tendencies. Thus, a major reason why German firms are expanding dual study programmes is to avoid strict collective standardisation procedures at the secondary level. However, further research is needed to uncover the causes for these intragroup differences and to understand better the long-term consequences of these changes on the evolving relationship between VET and HE.

Notes

1. In comparison to secondary level vocational pathways in Germany and Switzerland, the pathway offered by the Austrian VET colleges enjoys the highest academic reputation, given that it provides full academic access to universities, universities of applied sciences and short-cycle academic qualification options.
2. In 1997, a vocational baccalaureate was also introduced in Austria. However, the Austrian vocational baccalaureate differs from the Swiss one. For example, while the Austrian version qualifies its holders for access to all subjects within the higher education system, in Switzerland holders of the vocational baccalaureate need to complete a special supplementary examination if they want to enter universities or the federal institutes of technology.
3. The special role of the Swiss UAS in comparison to the universities of applied sciences in Austria and Germany is exemplified by the fact that Switzerland is the only case in which the educational backgrounds of the majority of students at universities of applied sciences involve dual apprenticeship training and, thus, extended in-firm training phases (Graf 2013, 162–168).
4. On the concept of segmentalism, see Thelen and Busemeyer (2012).
5. On the concept of associational self-regulation, see Streeck and Schmitter (1985).

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